



INSTRUCTION MANUAL

Digivac Model 100LP29Hg

Differential Pressure Gauge

Revision 1.0.0

YOU MUST READ THIS MANUAL BEFORE USE



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1.0 DESCRIPTION AND PRINCIPLE OF OPERATION.

The DigiVac Model 100LP29Hg is a highly reliable differential pressure gauge perfect when high accuracy is desired for clean, dry air. The differential pressure gauge has suction and vent ports. The vent port acts as the reference for differential pressure. If the vent port is exposed to atmosphere, the gauge effectively becomes a gauge pressure gauge. See our description at: http://www.digivac.com/product_info/understanding-pressure-in-vacuum-instrumentation.pdf for more information on the difference between absolute, gauge and differential pressure.

This device has a clearly marked terminal strips for all external connections. Optional external connections include relays set points, Analog out, and RS232 digital output.

The pressure reading is based on a silicon piezoresistive sensor married to control and conditioning circuitry to yield fast sub second response.

2.0 CONSTRUCTION.

The instrument is housed in a free-standing plastic enclosure. It is intended to be rack mounted on a panel or in a rack in a standard 1/8 DIN cutout. The device has a rear bulkhead where the vacuum interface hose barbs are mounted.

3.0 UNPACKING AND INSPECTION.

After the DIGIVAC is received, it should be carefully unpacked and inspected for damage during shipment and for completeness. The package should contain at a minimum the instrument, power supply, and an instruction manual. In the event of a loss during shipment, a claim should immediately be made to the common carrier or the postal service, as applicable. The DigiVac warranty pertains only to the instrument, and does not cover losses in shipping.

The DigiVac Model 100LP29Hg includes:

1. A Vacuum instrument with 0.56" 4 Digit LED display and 3/32 hose barbs for vacuum suction and vent connections
2. AC adapter that accepts 100-240VAC
3. AC adapter pigtail to enable wiring to AC
4. 3 feet of silicon tubing for suction
5. Rack mount kit for installation in a 1/8 DIN cutout
6. 3/32 hose barb to 1/8 MNPT brass fitting
7. This Manual

4.0 INSTALLATION.

The installation is fairly straight forward and can be performed by an electronics technician. Choose a mounting location for the display unit that will be visible to the operator. Make sure all of the cabling is securely fastened to insure a robust installation.

General Instructions:

- Find a secure place on the panel/rack that has room sufficient for wiring and visibility
- Make 1/8 DIN (92mm wide x 42mm high rectangular) mounting hole
- Run Wires (AC and any other wires)
- Connect Wires
- Assemble rack mount kit and install in panel
- Power on the device with AC main (there is no power switch on the gauge)

5.0 OPERATION.

After installation, the DigiVac Model 100LP29Hg is ready for immediate operation. As soon as the power is applied, the unit will be displaying differential pressure. When both ports are exposed to atmosphere, the unit will read 00.00. When a differential pressure is applied across the ports, the number indicated will be the differential pressure in units of inches of mercury. When a vacuum is applied to the suction port, an increasing number will appear in units inches of mercury. When a pressure is applied to the vent side, an increasing number will result indicating pressure. The instrument is designed for continuous operation.

6.0 SERVICING

There are no standard service intervals required for this device. If a NIST calibration is required, typical intervals are annual.

6.1 FACTORY REPAIR AND CALIBRATION.

The vacuum gauge assembly is designed to provide years of trouble-free service, and the liberal internal use of plug-in components make it easily repairable. No field servicing of the unit is recommended. Factory servicing and calibration are available at a nominal cost and turn-around times of 24 hours are typical.

6.2 FIELD CALIBRATION.

Each DigiVac vacuum gauge controller is calibrated to the particular vacuum sensor that is shipped with the unit. If a sensor or display is suspected for accuracy, please send the device back to DigiVac for a recalibration.

7.0 NOTES ON CALIBRATION.

The DigiVac device is calibrated under real vacuum using direct pressure standards traceable back to NIST.

8.0 UNDERSTANDING PRESSURE

Recall that the pressure of the atmosphere is 14.696 or approximately 14.7 pounds per square inch at sea level. This pressure is due to the weight of all of the air in the earth's atmosphere above any particular square inch. This 14.696 psi is equivalent to the pressure produced by a mercury column of approximately 29.92 inches high or .76 meters (about 3/4 of a yard) or 760 millimeters of mercury. Atmospheric pressure varies greatly with altitude. It decreases approximately 1 inch of mercury per thousand feet of altitude. It also varies widely with local weather conditions. (Variations of one half inch in a single day are common.) The word vacuum means pressure lower than atmospheric or "suction," but, in describing negative pressure, the atmosphere is only a satisfactory reference if we are dealing with values of vacuum down to about 27 inches of mercury. Below that, it is much more useful to talk in terms of absolute pressure, starting from absolute zero.

9.0 ACCESSORIES AND MODIFICATIONS.

The following are offered as accessory equipment or field-installed modifications:

- RS 232 digital output or Analog Recorder output
- 2 relay type C contacts (NO, NC, Common) that are tripped based on user settable set points
- DS – DigiVac Software that enables logging and plotting of differential data when interfaced to a DigiVac or customer supplied PC

10.0 ATTACHMENTS AND ILLUSTRATIONS.

Below are the Specifications of the system:

Range: 0-29.92

Units: inches of Hg

Accuracy: +/- .05 "Hg

Vac Interface: 3/32 hose barb

Sensor: DigiVac Differential

Display: 4 Digit 0.56" high red LED

Dimensions: 1.66" x 3.625"

Power: 5.0 VDC or 100-240VAC via supplied adapter

Environmental: IP20

11.0 TERMS AND CONDITIONS

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